520.42989X00

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: T. SHIROGANE, et al

Serial No.: 10/629,813

Filed: July 30, 2003

For: STORAGE SYSTEM

REQUEST FOR RECONSIDERATION OF PETITION TO MAKE SPECIAL UNDER 37 CFR 1.102(d) and MPEP. §708.02, VIII

MS Petition
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

January 27, 2005

Sir:

1. Petition

Applicants hereby renews its Petition to make this application **Special** previously submitted on August 5, 2004, in accordance with 37 CFR §1.102(d) and MPEP 708.02, VIII. The August 5, 2004 Petition was denied by a Decision issued on November 22, 2004 in which the Petitions Examiner stated that the August 5, 2004 Petition failed to recite distinct features of the claimed subject matter. The present Request for Reconsideration of Petition incorporates by reference the August 5, 2004 Petition and provides additional details regarding the claims and how the claimed subject matter is patentable over the references. The present invention is a new application filed in the United States Patent and Trademark Office on July 30, 2003 and as such has not received any examination by the Examiner.

2. Claims

Applicants hereby represent that all the claims in the present application are directed to a single invention. If upon examination it is determined that all the claims presented are not directed to a single invention, Applicants will make an election without traverse as a prerequisite to the granting of special status.

3. Search

Applicants hereby submit that a pre-examination search, a copy of the search been made by a professional searcher was attached to the August 5, 2004 Petition and therefore is not being resubmitted herewith.

The field of search covered:

Class	Subclasses
370	242, 360, 428
707	100
709	203, 213
714	5, 20, 718, 776

The above subclasses represent areas deemed to contain subject matter of interest to one or more of the search features. Additionally, a computer database search was conducted on the USPTO systems EAST and WEST; a keyword search was conducted in Class 710, subclasses 1, 5, 8 and 72; and Class 711, subclasses 111, 112, 113, 151, 163 and 206; as well as database searching for foreign patens and non-patent literature. Examiner Jack Lane in Class 711 (Art Unit 2188) was consulted in confirming the field of search.

4. Copy of References

A listing of all references found by the professional searcher was provided by a Form PTO-1449 and copies of the references and the Form PTO-1449 were submitted as part of an Information Disclosure Statement (IDS) filed on August 5, 2004. A copy of said August 5, 2004 Information Disclosure Statement without the references is being attached herewith.

5. Detailed Discussion of the References and Distinctions Between the References and the Claims

Below is a discussion of the references uncovered by the search and cited in the IDS filed on even date that appear to be most closely related to the subject matter encompassed by the claims of the present application, and which discussion particularly points out how Applicants' claimed subject matter is distinguishable over those references. All other references uncovered by the search and cited in the IDS filed on August 5, 2004 are **not** treated in detail herein.

a. Detailed Discussion of the References

Biessener (U.S. Patent No. 6,701,456) shows a computer system and method for maintaining an audit record for data restoration. It further shows in Figs. 1-3, col. 1, lines 8-18, col. 3, lines 15-45, and col. 10, line 29-col. 12, line 56 instantaneous storage restoration software and hardware systems which include a host device 100, a connection point 102 and a storage system108 including primary storage 104 and secondary storage 106, wherein the connection point 102 could, for example, be an IDE or SCSI **. Particularly, the reference Biessener instantaneous storage restoration software and hardware systems that can perform restoration of a storage

device to a previous state by use of an audit trail that maintains a comprehensive record of hard disk write transactions and/or other activity that enables the storage device to undergo a forward restoration, a reverse restoration or that provides relevant data for forensic or diagnostic applications.

Sonoda et al (U.S. Patent Application No. 2003/0105767) shows a storage system and control method which provides both interfaces of SAN and NAS, prevents data miss even when a failure occurs and makes it possible that an arbitrary number of NAS interfaces can access the same file system. As illustrated in Fig. 1 and as described in paragraphs [0021]-[0023] the reference teaches a storage system 100 including multiple interfaces for external connection including block interfaces 140, 150 and file interfaces 110, 120 and 130, disk devices 160 and 170 and a shared memory 180 accessible by the interfaces. The shared memory area includes a log storage area in which a change log of the file system is held and a management file server information storage area in which information associated with the file server for management for carrying out exclusive access control of the file system and the management of the log storage area are constructed in a plurality of disk.

Bushmitch et al (U.S. Patent Application Publication No. 2003/0182610) shows in Figs. 3-6 and in paragraphs [0010]-[0026] error resilient methods and apparatus for coding, storage, and transmission of digital multimedia data. It further shows digital media data re organized into channel blocks including columns of data wherein priority is determined for each block and different error correction procedure are selected according to the priority of the block. The blocks can be transmitted over a transmission channel and/or stored on different storage elements for later use

based on priority.

Kim et al (U.S. Patent Application Publication No. 2003/0226092) shows in Figs. 1-5 and paragraphs [0014] – [0024] and [0037]-[0048] a method for transmitting and receiving variable length packets based on forward error correct (FEC) coding. It further shows a method for receiving variable length packets on the basis of the FEC coding, having a storage device which has a predetermined storage length, and performing FEC decoding to restore data packets from received extension packet.

Merritt et al (U.S. Patent Application Publication No. 2004/0098394) shows in Figs. 1-3 and paragraphs [0017]-[0025] a localized intelligent data management for a storage system. It further shows that using technologies, such as iSCSI and local storage, remote backup can be seamlessly installed and enhance customer's disaster recovery capabilities.

b. Distinctions Between the References and the Claims

The present invention as recited in the claims is not taught or suggested by any of the above noted references whether taken individually or in combination with each other or in combination with any of the other references now of record.

The present invention as now recited in the claims is directed to an information processing apparatus, a repeater, a communication method and storage system that is capable of restoring transmitted data in a data transmission through a network even if packet of the data are lost; an information processing apparatus, repeater and storage system each conforming to the ISCSI protocol adopting the Forward Error Correction (FEC) technique; and an information processing apparatus, repeater and storage system each being capable of transmitting data by changing

the status of an FEC process and redundancy of a data transmission between ISCSI layers in accordance with destination of the data transmission.

Particularly, according to the present invention, the information processing apparatus converts information generated by an information generation unit into packet to be transmitted to a network and receives the packet from the network. The information processing apparatus includes means for converting information generated by the information generation unit into a TCP/IP packet group, a management unit for managing FEC redundancies each provided for a transmission partner, an encoding unit for carrying out an FEC encoding process on a packet group, which has been subjected to a TCP/IP conversion process, by referencing a redundancy held the management unit for a transmission partner and a decoding unit for carrying out an FEC decoding process on a packet group received from the network.

The repeater according to the present invention transmission and receives packet data through port on a network side and a port on a storage apparatus side. The repeater includes a transmission management table used for cataloging and managing FEC redundancies each provided for a transmission destination, a reception management table used for cataloging and managing FEC redundancies each provided for a transmission source, an encoding unit for carrying out a FEC encoding process on iSCSI-layer data, which has been generated by a storage apparatus in the form of packets, and providing the data with an FEC redundancy catalog for a transmission destination by referencing the transmission management table and a decoding unit for carrying out an FEC decoding process on packet data which has been received from the network, by referencing the reception

management table in order to restore the iSCSI layer data.

The communication method and the storage system as per the claims recite similar features particularly with regard to the use of a management unit for managing FEC redundancies each provided for transmission partner and an encoding unit for carrying out an FEC encoding processing on the iSCSI packet group resulting from the conversion process and conforming to the TCP/IP by referencing the redundancy held for a transmission partner in the management unit.

The above described features of the present invention as recited in the claims are not taught or suggested by any of the above described references or any of the other references of record whether taken individually or in combination with each other.

For example, the above described features of the present invention are not taught or suggested by Biessener. As per the above, Biessener merely shows a computer system and method for maintaining an audit record for data restoration. As per Biessener, instantaneous storage restoration software and hardware systems are provided which performs restoration functions using the audit records.

The present invention as recited in, for example, in claims 1-4 are not taught or suggested by Biessener being that the present invention provides a management unit for managing FEC redundancies each provided for transmission partner, an encoding unit for carrying out an FEC encoding process on a packet group, which has been subjected to a TCP/IP conversion process by referencing a redundancy held in the management unit for transmission partner, and a decoding unit for carrying out an FEC decoding process on packet group received from the network. These features are clearly not taught or suggested by Biessener.

Further, the present invention as recited in claims 5-20 of the present invention differs from that taught by Biessener being that the present invention in addition to the above described features regarding the management unit, the encoding unit and the decoding unit provides that the decoding unit carries out an FEC encoding process on iSCSI layer data, which has been generated by the conversion process and conforming the data to the TCP/IP by referencing the redundancy held in a transmission in the management unit. These features are clearly not taught or suggested by Biessener.

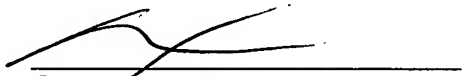
The above noted deficiencies of Biessener are also evident in each of the above described references and each of the other references of record. Therefore, the above described and the other references of record whether taken individually or in combination with each other still fail to teach or suggest the features of the present invention as recited in the claims.

Based on the above, Applicants submit that the claims of the present application are patentable over the above described references and the other references of record whether taken individually or in combination with each other.

Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of MATTINGLY, STANGER & MALUR, P.C., Deposit Account No. 50-1417 (520.42989X00).

Respectfully submitted,

MATTINGLY, STANGER & MALUR, P.C.



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Serial No.: 10/629,813

Filed: July 30, 2003

For: STORAGE SYSTEM

INFORMATION DISCLOSURE STATEMENT
UNDER 37 CFR §1.97 & 1.98

MS Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

August 5, 2004

Sir:

In the matter of the above-identified application, applicants are submitting herewith copies of the documents listed in the attached form equivalent to Form PTO-1449 for the Examiner's consideration.

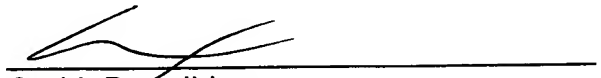
This information disclosure statement is being submitted before the mailing date of a first office action on the merits.

To the extent the documents listed on the attached form equivalent to Form PTO-1449 are not in the English language, the requirement of 37 CFR §1.98(a)(3) for a concise explanation of the relevance is satisfied by an English language translation of the documents.

It is respectfully requested that this information disclosure statement be considered by the Examiner.

Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to the deposit account of Antonelli, Terry, Stout & Kraus Deposit Account No. 01-2135 (520.42989X00) please credit any excess fees to such deposit account.

Respectfully submitted,



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FORM PTO-1449 U.S. Department of Commerce (Rev. 4/92) Patent and Trademark Office

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use several sheets if necessary)

ATTY. DOCKET NO.	SERIAL NO.
520.42989X00	10/629,813
APPLICANT: T. SHIROGANE, et al	
FILING DATE: July 30, 2004	GROUP

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER							DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
		5	3	3	7	4	1	4	8/94	Hashemi et al			
		5	4	5	0	5	4	8	9/95	Matsushima			
		5	8	3	8	8	9	1	11/98	Mizuno et al			
		6	0	0	9	5	3	5	12/99	Halligan et al			
		6	0	3	2	1	8	0	2/00	Nishikawa			
		6	2	3	7	0	5	2	5/01	Stolowitz			
		6	6	0	6	6	9	0	8/03	Padovano			
		6	7	0	1	4	5	6	3/04	Biessener			
	2002	0	1	1	2	1	3	4	8/02	Ohran et al			
	2003	0	0	9	7	6	0	7	5/03	Bessire			
	2003	0	1	0	5	7	6	7	6/03	Sonoda et al			

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER							DATE	COUNTRY	CLASS	SUBCLASS	ABSTRACT YES	ABSTRACT NO
	2001	8	6	1	5	3			3/01	Japan				
	4	2	3	3	0	2	5		8/92	Japan				

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

EXAMINER	DATE CONSIDERED

EXAMINER: Initial if citation is considered, draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

(Form PTO-1449 [6-4])

FORM PTO-1449 U.S. Department of Commerce (Rev. 4/92) Patent and Trademark Office	ATTY. DOCKET NO.	SERIAL NO.
	520.42989X00	10/629,813
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	APPLICANT T. SHIROGANE, et al	
(Use several sheets if necessary)	FILING DATE July 30, 2003	GROUP

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER							DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	2003	0	1	0	5	9	2	1	6/03	Tomita			
	2003	0	1	2	6	5	2	2	7/03	English et al			
	2003	0	1	7	7	1	7	4	9/03	Allen et al			
	2003	0	1	8	2	6	1	0	9/03	Bushmitch et al			
	2003	0	2	2	6	0	9	2	12/03	Kim et al			

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER							DATE	COUNTRY	CLASS	SUBCLASS	ABSTRACT	
													YES	NO
	2001	8	6	1	5	3			3/01	Japan				

EXAMINER	DATE CONSIDERED

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(Form PTO-1449 [6-4])

FORM PTO-1449 U.S. Department of Commerce (Rev. 4/92) Patent and Trademark Office	ATTY. DOCKET NO.	SERIAL NO.
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	**520.42989X00**	**10/629,813**
(Use several sheets if necessary)	APPLICANT **T. SHIROGANE, et al**	
	FILING DATE **July 30, 2003**	GROUP

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER							DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	2004	0	0	1	0	6	1	2	1/04	Pandya			
	2004	0	0	4	9	5	5	3	3/04	Iwamura et al			
	2004	0	0	9	8	3	9	4	5/04	Merritt et al			

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER							DATE	COUNTRY	CLASS	SUBCLASS	ABSTRACT	
													YES	NO

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

EXAMINER	DATE CONSIDERED

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(Form PTO-1449 [6-4])